

Talking Points

- Experiment: neutrino and charged lepton scattering
 - Need both to get full picture of nuclear effects. What do we need
- Theory & Fits
 - Where are we lacking/what are the differences between them?
- Generators
 - What do they need from experimentalists for SIS and DIS regions? How do they compare? Is there a preferred underlying model we should move towards?

The World According To HRay

- Lots of work on experimental front in neutrino and charged lepton scattering
- Expect in next 5 years to have wealth of data of extracted structure functions, ratios, SIS inputs
 - R , u/d , $F2p/F2n$, F 's in ν as $f(A)$, nuclear effects in ν vs lepton as $f(A)$, 1 & 2 pion bgds in SIS
- While experimenters are experimenting, we need to focus on development of fitters and extraction techniques and generators

My Largest Issue

- We have a wide variety of fits to data
- Use different combinations of data sets, assumptions, still difficult to reconcile charged lepton, Drell-Yan, and neutrino data
 - CJ: needs theorists to work on deuterium nuclear effects
 - HERAPDF: no nuclear target data, fewer data sets to control uncertainty, will include LHC data
 - CTEQ
 - nCTEQ: relies on built up d model, needs to expand # of data sets in analysis of partonic nuclear effects

Event Generators

- Seen some comparisons in neutrino data with NEUT, NUANCE, GENIE
- Need “right physics” in generators, but how do we know what this truly means if we aren’t being driven by data?
- Comparisons of generators for upcoming results would be very useful